

**ANALYZING FORCE, DELAMINATION, ROUGHNESS, AND
CHIPS OF DRILLED CARBON FIBRE REINFORCED
POLYMER (CFRP) COMPOSITE PLATE EXPERIMENT**



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VALIDATION SHEET

This Final Project Report has been checked, accepted and legalized by supervisor, knowing by Head of Mechanical Engineering Department Wuxi Institute of Technology and Head of Mechanical Engineering Department of Muhammadiyah Surakarta University.

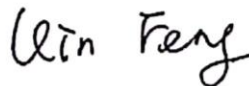
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FOREWORD

My thanks to Allah SWT by His-grace and mercy, so I can accomplish this Graduation Project Report as the time scheduled. This writing was done to complete the undergraduate study in Mechanical Engineering Department of Muhammadiyah Surakarta University. The writer will not be able to finish this paper without support and guidance of some great people. Therefore, in this opportunity I would like to grateful for;

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The writer realizes that this writing may not be perfect, because of my lack of knowledge and ability. Therefore, I would like to get some advice to improve this writing. Finally, I hope this writing will be useful for everyone read it.

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Author



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TABLE OF CONTENTS

VALIDATION SHEET	ii
FOREWORD	iii
ACKNOWLEDGEMENT	iv
TABLE OF CONTENTS	v
LIST OF FIGURE	viii
LIST OF TABLE	ix
LIST OF GRAPH	x
ABSTRACT	xi
CHAPTER I INTRODUCTION	1
1.1 Background	1
1.2 Problem statement	3
1.3 Problem limitation	5
1.4 Objective of research	5
1.5 Benefit	5
1.6 Preface	6
CHAPTER II LITERATURE REVIEW	8
2.1 Manufacturing process – drilling	8
2.2 Drilling holes of composite	9
2.3 Cutting forces and temperature	11
2.3.1 Cutting forces	11
2.3.2 Temperature	12
2.4 Cutting tool and method	14

2.4.1 Cutting tool	14
2.4.2 Method	14
2.5 Composite material	17
2.5.1 Polymer composite	18
2.5.2 Carbon fiber	19
2.6 Delamination	21
2.6.1 Effect of drilling factors on delamination	22
2.7 Chips/swarfs in drilling process	23
2.8 Axial force and torque	24
2.9 Roughness of drilled hole	24
CHAPTER III METHODOLOGY PROJECT	26
3.1 Flow chart	26
3.2 Location and implementation time	27
3.3 Experimental design	27
3.3.1 Work piece	27
3.3.2 Cutter specification	28
3.4 Drilling process parameters	29
3.5 Programming and modeling by UG NX SIEMENS	29
CHAPTER IV DISCUSSION ANALYSIS	32
4.1 Drilling force towards the work piece	32
4.1.1 Thrust force	32
4.1.2 Torque	32
4.2 Delamination	34

4.3 Diameter comparison to hole roughness	36
4.4 Effect of various diameter on drilling chips	37
CHAPTER V CONCLUSION	39
5.1 Conclusion	39
5.2 Suggestion	40
REFERENCE	
ATTACHMENT	

LIST OF FIGURE

Fig.2.1 Schematic representation of the geometric parameters	8
Fig.2.2 Drilling mechanism	8
Fig.2.3 Research area in drilling CFRP composite	9
Fig.2.4 Cutting tool simulation through work piece	11
Fig.2.5 Force acting on cutting tool	12
Fig.2.6 Cutting temperature measuring system	13
Fig.2.7 Temperature change checking by smart sensor	13
Fig.2.8 Variants of drill cutters	14
Fig.2.9 Twist drill bit cutting edge	15
Fig.2.10 Example of composite structure	17
Fig.2.11 Example of wood polymer	18
Fig.2.12 Example of carbon fiber	20
Fig.2.13 Delamination Mechanisms	21
Fig.3.1 Specimen of CFR material	27
Fig.3.2 Cutter used for experiment	28
Fig.3.3 Picture of creating 2D modelling by NX SIEMENS	29
Fig.3.4 Picture of drilling 8mm holes in modelling process	30
Fig.3.5 Picture of drilling 10mm holes in modelling process	30
Fig.3.2 Cutter used for experiment	28
Fig.3.2 Cutter used for experiment	28
Fig.4.1 Roughness tester equipment	36

LIST OF TABLE

Table 2.1 Drilling parameter formulas	9
Table 3.1 Design specifications of cutter	28
Table 3.2 Operating parameters of cutter	28
Table 3.3 Machining parameters for experiment	29
Table 4.1 Delamination on the holes	34
Table 4.2 Hole roughness test picture	36
Table 4.3 Shape of chips produced by various diameter	37

LIST OF GRAPH

Graph 4.1 Force acting on specimen	32
Graph 4.2 Graph of torque	32
Graph 4.3 Delamination graph of specimen tested	34

ABSTRACT

Abstract: The attributes of carbon fiber reinforced polymer composite have expanded their utility from aerospace to domestic appliances and new possibilities for their usage emerge almost from time to time. So that it can be used in many possible applications, the laminate needs to be drilled for assembly purposes. Considering their compliance to high temperature process from drilling, various phenomena may occur during this process, e.g. delamination, which affect in both mechanical properties as well as occurrence of manufacturing damage of a treated material. The results compare drilling process in various machining parameters along with the analysis of force, delamination, roughness, and chip produced with expectations to extend the life cycle of these laminates as a consequence of enhanced reliability.

Keywords: carbon fibers reinforced; chips produced by drilling; composite material; delamination; drilling composite structures; drilling force; drilling parameters; drilling temperature; surface roughness